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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/678,142	10/03/2000	Noriaki Sakamoto	10417-049001	6940

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EXAMINER	
NORRIS, JEREMY C	

ART UNIT	PAPER NUMBER
2841	

DATE MAILED: 12/15/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

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Office Action Summary	Application No.	Applicant(s)	
	09/678,142	SAKAMOTO ET AL.	
	Examiner	Art Unit	
	Jeremy C. Norris	2841	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *15 November 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *4-26 and 32-68* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *4-7,10-17,20-26,32-39,42-44,46-48,50-53,55-57,59-61,63 and 65-68* is/are rejected.

7)☐ Claim(s) *8,9,18,19,40,41,45,49,54,58,62 and 64* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *24 December 2002* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *11/15/04*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after allowance or after an Office action under *Ex Parte Quayle*, 25 USPQ 74, 453 O.G. 213 (Comm'r Pat. 1935). Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, prosecution in this application has been reopened pursuant to 37 CFR 1.114. Applicant's submission filed on 15 November 2004 has been entered.

Response to Arguments

The indicated allowability of claims 4-7, 10-17, 20-26, 32-39, 42-44, 46-48, 50-53, 55-57, 59-61, 63, and 65-68 is withdrawn in view of the newly discovered reference(s) to US 6,001,671. Rejections based on the newly cited reference(s) follow.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 4-7, 10-17, 20-26, 32-39, 42-44, 46-48, 50-53, 55-57, 59-61, 63, and 65-68 are rejected under 35 U.S.C. 102(e) as being anticipated by US 6,001,671 (hereafter Fjelstad).

Fjelstad discloses, referring to figures 7A-7G-2, a sheet-like board member comprising: a first planar surface; a second planar surface disposed opposite to the first surface, said second planar surface having a semiconductor element mount region (415) defined thereon; and a mask (410, 415) disposed on the second planar surface and having a pattern corresponding to a plurality of first pads formed in or in the vicinity of the semiconductor element mount region, said mask comprising a conductive film, wherein the sheet-like board member is made of metal (col. 8, lines 10-35) [claim 10], further comprising: a wiring disposed on said second planar surface (118' see fig. 2F) [claim 4], wherein the first pads are bonding pads or pads on which solder balls are to be fixed [claim 5], wherein the conductive coating is disposed in the semiconductor element mount region to form a die pad [claim 6], wherein the conductive coating film is disposed on the second planar surface to form a passive element die pad and/or outer lead electrode [claim 7], wherein the sheet-like board member is formed from a conductive foil, and the conductive film is formed of a material different from that of the conductive foil (col. 8, lines 10-15) [claim 11].

Similarly, Fjelstad discloses, referring to figures 7A-7G-2, a sheet-like board member comprising: a first planar surface; a second planar surface disposed opposite to the first planar surface; a protuberance (fig 7C) formed on said second planar surface; wherein the protuberance comprises a plurality of first pads (410) in or in the

vicinity of a semiconductor element mount region (415) defined on the second planar surface, and wherein the sheet-like board member is made of metal (col. 8, lines 10-15) [claim 12], wherein the protuberance comprises wirings (118', figure 2F) integrally formed with the first pads [claim 13], wherein the protuberance comprises second pads integrally formed with the wirings (fig. 2F) [claim 14], wherein the first pads comprise bonding pads, or pads on which solder balls or bumps are mounted (fig. 7D) [claim 15], wherein the protuberance comprises die pads provided in the semi-conductor element mount region (fig. 2F) [claim 16], wherein the protuberance comprises passive element die pads and/or outer lead electrodes [claim 17], comprising protuberances arranged in a plurality of patterns as a unit, wherein the unit is arranged in a matrix pattern on the sheet-like board member (fig. 2F) [claim 20], wherein the sheet-like board member comprises mainly Cu, Al, an Fe-Ni alloy, a Cu-Ai multi-layered member, or an Al-Cu-Al multi-layered member (col. 8, lines 10-20) [claim 21], comprising a conductive coating film formed of material different from that of the protuberance and formed on an upper surface of the protuberance (col. 8, lines 1-20) [claim 22], wherein a side surface of the protuberance has an anchoring structure (fig. 5J) [claim 23], further comprising: a conductive film comprising an anvil-shaped structure in the vicinity of a top surface of the protuberance (fig. 7D) [claim 24], comprising a conductive film on the protuberance, wherein the conductive film comprises Ni, Au, Ag or Pd (col. 8, lines 10-15) [claim 25].

Additionally, Fjelstad, discloses, a sheet-like board member comprising: a planar surface (400); a sheet-like front side of predetermined thickness which is provided on the planar surface; a plurality of first pads (410) formed in or in the vicinity of a

semiconductor element mount region (415) defined on the planar surface; protuberances formed on said planar surface and include wirings (118', fig. 2F) integrally formed with the first pads, said plurality of first pads and said protuberances formed within an abutting region defined on said planar surface. Examiner notes that the limitation "said abutting region provided to contact with an upper metal mold" [claim 26] is an intended use limitation and is thus only considered to the extent that the limitation impacts the claimed structure. Thus a prior art meeting all the other claimed structural limitations only needs to be capable of being used in the claimed manner. Also, Fjelstad discloses, wherein said planar surface having the protuberances, some of which semiconductor elements (420) are disposed thereon, are all encapsulated in plastic (440) [claim 32].

Moreover Fjelstad discloses, refrring to figures 7A-7G2, a sheet-like board member (400) comprising: a first planar surface a second planar surface disposed opposite to the first surface, said second planar surface having a semiconductor element mount region (415) defined thereon; and a mask for etching disposed on the second planar surface and having a pattern corresponding to a plurality of first pads (410) formed in or in the vicinity of the semiconductor element mount region wherein the sheet-like board member is made of metal (col. 8, lines 10-15) [claim 33], wherein the mask comprises a photoresist (col. 7, lines 40-55) [claim 34], wherein the mask comprises a conductive film (col. 8, lines 1-15) [claim 35], further comprising: a wiring (118', fig. 2F) disposed on said second planar surface, wherein the mask is formed on a region corresponding to the wiring integrally connected to one or more of the first pads

[claim 36], wherein the first pads are bonding pads or pads on which solder balls are to be fixed (fig. 7D) [claim 37], wherein the conductive coating film is disposed in the semiconductor element mount region to form a die pad (415) [claim 38], wherein the conductive coating film is disposed on the second planar surface to form a passive element die pad and/or outer lead electrode [claim 39], wherein the sheet-like board member comprises a pressed metal (col. 8, lines 10-20) [claim 42], wherein the sheet-like board member is formed from a conductive foil, and the conductive film is formed of a material different from that of the conductive foil (col. 8, lines 1-20) [claim 43], wherein the sheet-like board is partially etched in an area not covered by the mask (fig. 7B, 7C) [claim 44], wherein the sheet-like board is partially etched in an area not covered by the conductive film (fig. 7B, 7C) [claim 48], comprising a conductive film formed on the protuberance [claim 52], wherein an Ag plating is formed on the protuberance (col. 4, lines 15-25) [claim 53], wherein the sheet-like board is partially etched in area not covered by the mask. [claim 57].

Furthermore Fjelstad discloses, referring to figures 7A-7G-2, a method of manufacturing a semiconductor device comprising: preparing a sheet-like board member (400) as defined in any one of claims 10, 12, 26, 33 and 44-60 (see above); partially etching the second planar surface of the sheet-like member so as to form the first pads; disposing a circuit element onto a portion on the sheet-like board member; molding a surface of the sheet-like board member by an insulating resin (440) so that the sheet- like board member is covered [claim 61].

Moreover, Fjelstad discloses, a method of manufacturing a semiconductor device comprising: preparing a sheet-like board member as defined in any one of claims 12 and 26 (see above); disposing a circuit element (410, 415) onto a portion of the protuberances of the sheet-like board member; molding a surface of the sheet-like board member by an insulating plastic (440) so that the sheet-like board member is covered [claim 63], including a wiring (118', fig. 2F) continuously extended from a land [claim 65-68].

Allowable Subject Matter

Claims 8, 9, 18, 19, 40, 41, 45, 49, 54, 58, 62, and 64 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: Claims 8, 18, 40 state the limitation "wherein a passive element to be placed on the passive element die pad comprises a chip resistor or a chip capacitor". This limitation, in conjunction with the other claimed limitations was neither found to be disclosed in, nor suggested by the prior art. Claims 9, 19, 41 state the limitation "wherein patterns which are substantially identical with guide pins or guide holes into which the guide pins are inserted are formed in mutually-opposing side of the sheet-like board member". This limitation, in conjunction with the other claimed limitations was neither found to be disclosed in, nor suggested by the prior art. Claims 45, 49, 54, 58 state the limitation "wherein a positioning mark is provided on the sheet-like board member". This

limitation, in conjunction with the other claimed limitations was neither found to be disclosed in, nor suggested by the prior art. Claims 47, 51, 56, 60 state the limitation "wherein a guiding hole is formed with the sheet-like board member". This limitation, in conjunction with the other claimed limitations was neither found to be disclosed in, nor suggested by the prior art. Claims 62, 64 state the limitation "wherein the sheet-like board member is fixed by means of vacuum suction".

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeremy C. Norris whose telephone number is 571-272-1932. The examiner can normally be reached on Monday - Friday, 9:30 am - 5:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kamand Cuneo can be reached on 571-272-1957. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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